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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,210	10/31/2003	Jemmy Sutanto Bintoro	GTRC132	2791
6980	7590	09/20/2005	EXAMINER	
TROUTMAN SANDERS LLP BANK OF AMERICA PLAZA, SUITE 5200 600 PEACHTREE STREET, NE ATLANTA, GA 30308-2216			DONOVAN, LINCOLN D	
			ART UNIT	PAPER NUMBER
			2832	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/699,210

Applicant(s)

BINTORO ET AL.

Examiner

Lincoln Donovan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

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**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>02-27-04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 18-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected fabrication method, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 06-24-05. **Claim**

### ***Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 12, applicant should clarify the movement intended by the membrane being "capable of moving *though* a first... ." It appears that applicant may have intended the membrane being capable of "moving through or between a first.... ."

In claim 8, line 2, there is no antecedent basis for "the electromagnetic force generator."

Claim 13 lacks sufficient structure for the functional language of "is fabricated in a CMOS compatible process."

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Albarda et al. [US 5,029,805].

Albarda et al. disclose a valve arrangement [figure 2] comprising: a single substrate [1] upon which is fabricated a membrane [3] and a membrane activating member [11, 12] wherein the membrane is capable of moving between a first position in which flow is inhibited through a flow path and a second position enabling flow through the flow path and the membrane activating mechanism being capable of moving the membrane between the first and second positions [figure 2, column 5, lines 28-51].

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11 [US 6,123,316] in view of Albarda et al.

Regarding claims 1-2, 12 and 14, Biegelsen et al., figure 11, discloses an actuator for a microvalve [figure 11] comprising: a substrate assembly [202, 214] upon which is fabricated a membrane [242] and an electromagnetic membrane activating member [216] wherein the membrane is capable of moving between a first position in

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which flow is inhibited through a flow path and a second position enabling flow through the flow path and the membrane activating mechanism being capable of moving the membrane between the first and second positions [figure 11, column 12, line 56-column 13, line 11]

Biegelsen et al., figure 11, disclose everything claimed except the substrate assembly being formed of a single substrate [1].

Albarda et al. discloses a microvalve formed from a single substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a single substrate to form the substrate assembly of Biegelsen et al., figure 11, in order to simplify fabrication.

Regarding claim 3, Biegelsen et al., figure 11, discloses the substrate assembly including an orifice [226].

Regarding claims 4-7, Biegelsen et al., figure 11, discloses the use of a convex bistable membrane [figure 11, column 12, line 56-column 13, line 11].

Regarding claims 10-11, the specific energy applied to the actuator and the time to full activation would have been obvious design considerations based on the necessary operating times and working environment.

Regarding claim 13, the specific process used to form the substrate would have been an obvious design choice based on the specific environment of intended use.

Claims 8-9 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11, as applied to claim 1 above, and further in view of

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Biegelsen et al., figure 12 and Cho et al. [IEEE publication A Bidirectional Magnetic Microactuator Using Electroplated Permanent Magnet Arrays.]

Regarding claim 8, Biegelsen et al., figure 11, disclose everything claimed except the membrane being located between a permanent magnet and the electromagnetic force generator.

Biegelsen et al., figure 12, discloses placing the membrane between a permalloy poled region [215, column 13, lines 12-42] and the electromagnetic actuator.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the poled region of Biegelsen et al., figure 12, in Biegelsen et al., figure 11, for the purpose of controlling response time.

Cho et al. disclose the use of permanent magnets with microactuators.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use permanent magnets for the poled magnetic region of Biegelsen et al., as modified, for the purpose of maintaining bistable operation with less biasing force.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mettner et al. [US 5,647,574] and Saaski et al. [US 5,705,070].

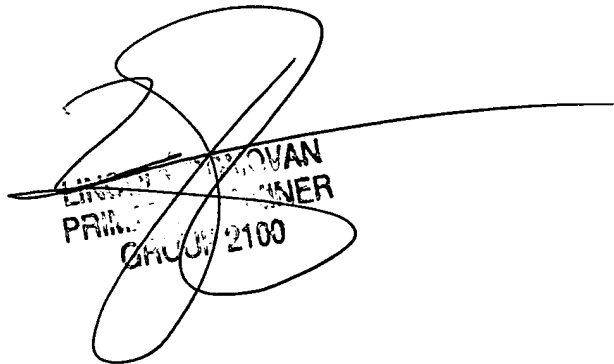
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lincoln Donovan whose telephone number is 571-272-1988. The examiner can normally be reached on M-F 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Enad Elvin can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ldd

A handwritten signature in black ink is written over a rectangular stamp. The stamp contains the text "ENAD ELVIN" on the top line, "PRINCIPAL EXAMINER" on the second line, and "GROUP 2100" on the third line. The signature is a large, stylized, cursive mark that crosses through the stamp.